

STATE OF NORTH CAROLINA: COMPREHENSIVE ENERGY AND WATER MANAGEMENT

SOLUTION OVERVIEW

In 2002, the Governor of North Carolina issued a memorandum and established a comprehensive energy and water management program, the Utility Savings Initiative (USI) program, to help address the unusually tight budgets in the State.

In 2007, the North Carolina General Assembly passed a bill that established:

- goals for reducing energy consumption for State agencies and UNC Institutions;
- a requirement for State agencies and UNC Institutions to update their energy management plans annually; and
- an annual utility data reporting requirement for all State agencies, UNC Institutions, and community colleges.

With the USI program structure and staff already in place, the program became the mechanism for implementing the requirements of the legislation. USI program staff provided the State agencies and UNC Institutions with training and technical assistance and recognized leading agencies and universities for their leadership in promoting USI principles.

GOAL

To reduce energy consumption in State owned buildings by 30% by 2015 (2002-03 baseline) with a stretch goal to reduce energy consumption in 123 million square feet of buildings by at least 20% by 2020 (2008-09 baseline)

BARRIER

Limited internal capacity and framework to effectively manage energy and water usage across State owned buildings

SOLUTION

Utilized executive and legislative policies to establish a comprehensive energy and water management program, set energy reduction goals, require energy management plans, and fund a dedicated team to provide training and technical assistance

OUTCOME

A total investment of approximately \$12 million in State appropriated funds to support the operation of the program plus \$160 million in performance contracts through private bank financing leveraged by the program has helped produce nearly \$553 million in avoided utility costs. Energy and water consumption have decreased by 27% and 26%, respectively

POLICIES

In the early 2000s, North Carolina was facing unusually tight budgets and the Governor saw an opportunity to save money by reducing energy and water use in State owned buildings. In February 2002, Governor Michael Easley established the Commission to Promote Government Efficiency and Savings on State Spending to address budget challenges in North Carolina. One of the Commission's recommendations was to establish a statewide utility savings initiative. In July 2002, Governor Easley issued a memorandum acting on the Commission's recommendation and officially established the USI program.

Then in 2007, the North Carolina General Assembly passed a landmark bill in the State, Senate Bill 668, which codified the USI program requirements. The impetus for the legislation was the need to save taxpayer dollars and mandating that State owned buildings reduce their energy and water usage was a way to address that need. State legislators, State agencies, and professional organizations, such as the North Carolina chapters of the American Institute of Architects, Energy Services Coalition, and U.S. Green Building Council, worked together to craft legislation that would be supported by all sectors. Broader consensus was built around these policies by limiting the scope of the legislation to focus on energy and water rather than sustainability as a whole.

With the passage of these policies in North Carolina, energy management was given a priority status at the Governor's level and energy and water were seen as manageable resources, which could have significant positive economic benefits. Although the entire set of policies were necessary for success in North Carolina, establishing the USI program and funding its dedicated staff through annual State appropriations was vital in laying the foundation. With the passage of Senate Bill 668, the mechanism was already in place to help implement the requirements of the legislation and provide the assistance necessary to meet those requirements.

A Memorandum from North Carolina Governor Michael Easley (July 2002) was written to the Council of State Members, Cabinet Secretaries, the UNC System President, and the UNC Chancellors requesting that they make the USI program a high priority within their organizations. The July 2002 Memorandum followed on a recommendation by the Commission to Promote Government Efficiency and Savings on State Spending to establish a statewide utility savings initiative. As outlined in the Governor's memorandum, the initiative involves five areas of review:

1. a rate-appropriateness review by all agencies to determine the most economical rate for electricity service;
2. an energy and water conservation review by all agencies to determine low-cost and no-cost opportunities to implement common sense savings measures in ongoing operations and

maintenance;

3. a review by the State Energy Office to determine where efficiencies may be realized by consolidating utility accounts and maximizing the utilization of electronic payments;
4. a rate-appropriateness study of other utilities by the State Energy Office to determine if further savings can be achieved; and
5. actions to enable agencies to execute performance contracts to achieve savings, including support of authorizing legislation.

The Governor directed the State Energy Office to implement this initiative, and the memorandum asked the leaders of the respective organizations to designate a liaison to work with the State Energy Office in this effort. The leaders were asked to designate the liaison within five working days of the receipt of the memorandum and require that each liaison be responsible for:

1. coordinating the rate review within the organization;
2. participating in training workshops and other assistance offered by the State Energy Office to identify low and no cost measures that can be easily implemented in the daily facility operation and maintenance of the organization's buildings; and
3. working with utility companies to evaluate billing and payment efficiencies that can be achieved.

In addition, the energy office formed a statewide steering committee with representatives from several agencies and the University system to provide overall direction for the USI. The projected first year savings from this initiative was \$7 million.

A Memorandum from North Carolina State Energy Office Director Larry Shirley (September 2002) was written to the Council of State Members, Cabinet Secretaries, the UNC System President, and the UNC Chancellors outlining a number of training opportunities for agency and university liaisons to help them identify no-cost/low-cost energy and water conservation opportunities and behavioral actions for agency and university staff to implement that would reduce energy use in their facilities. The memorandum directed each agency and university to issue its own memorandum to staff outlining these behavioral actions. These efforts were put in place to address shortfalls in utility budgets for the 2002 fiscal year.

Senate Bill 668 - An Act to Promote the Conservation of Energy and Water Use in State, University, and Community College Buildings(August 2007) is considered a landmark bill in North Carolina because the passage of this legislation increased awareness around the importance of energy and water as resources that could be managed, and created a cooperative environment throughout the State as State agencies and UNC Institutions worked to reduce their energy use in order to meet the targets outlined in the bill. The energy reduction goals outlined in Senate Bill 668 also provided tangible targets for other initiatives to latch onto. For example, the President of the UNC System utilized Senate Bill 668 to establish the UNC Energy Initiative to push the various institutions of higher learning under his leadership to meet the energy savings targets outlined in the legislation.

Senate Bill 668 contained three major elements:

- a comprehensive strategic energy and water program;
- reducing energy and water in new construction and major renovations; and
- implementation of measures in existing buildings with very quick payback.

A Comprehensive Strategic Energy and Water Program

The major element directly related to the USI program was the requirement for the State Energy Office to develop a comprehensive strategic energy and water program. That portion of the legislation laid out the following requirements:

- assigned the State Energy Office with the role of developing a comprehensive energy and water management program.
- required that energy consumption in all State buildings be reduced by 20% by 2010 and 30% by 2015 based on a 2002-2003 baseline.
- mandated the 14 State agencies and 21 UNC Institutions to update their energy management plans annually.
- required the 14 State agencies, 21 UNC Institutions, and 58 community colleges to submit an annual written report of utility consumption and cost.

Tools:

- [Memorandum from Governor Michael Easley](#)
- [Memorandum from SEO Director](#)
- [North Carolina Senate Bill 668](#)

PROCESS

State policies directed the State Energy Office to manage the USI program and through that program help the State agencies and UNC Institutions meet the requirements outlined in those policies. In order to achieve that goal, the State Energy Office established a dedicated four person team initially funded by Petroleum Violation Escrow (PVE) funds distributed by the Department of Energy. In 2007, when the PVE funds were no longer available, North Carolina recognized the importance of the USI program and its success in cutting utility costs, so \$500,000 was set aside in annual State appropriations to fund the program and its dedicated staff. That yearly appropriation in combination with some of the funds from the Department of Energy's State Energy Program provided the necessary budget to cover the salaries, training, technical assistance, and travel costs of the USI staff.

Initially the USI program staff was organized around sectors. For example, one staff member would be solely responsible for all the State agencies while another was responsible for all the UNC Institutions. When the program was charged with providing services to all public sector buildings, organizing around sectors became very inefficient. The staff of four is now organized by region serving 21 UNC Institutions, 14 agencies, 58 community colleges, 115 K-12 public school systems, 100 county governments and 548 municipalities. This is a far more cost effective approach since periodic site visits to USI program participants are the cornerstone of the support the USI program

provides to participants. Now each staff member is assigned a region of the State and focuses on all of the public buildings in that particular region, which has helped to cut down on travel costs. Another cost saving measure put in place is that two of the USI program staff members work remotely out of dedicated office space in their region. This has also had considerable impact on the travel costs. Interestingly, the remote office space is provided by USI program participants free of charge because the organizations recognize the value of the USI program members to not only their organization, but also to the other organizations in the region.

As outlined in Governor Michael Easley's memorandum, each State agency and UNC Institution assigns a single point of contact to work as the liaison with the USI program staff in coordinating the development of the organization's strategic energy plan and surrounding activities required to meet the goals outlined in the State policies. Liaisons also reference the requirements of the legislation when pushing for changes within their organizations. This single point of contact is a key to the success of the initiative. The single point of contact within the various organizations helped to establish a cooperative working relationship between the USI program team and the organization. Not only does the USI program staff member meet with their respective liaisons during the site visits, but they also set up quarterly meetings to meet with the liaison and the liaison's manager, such as the head of engineering or design group at the agency level or a vice chancellor at the university level, to talk through the organization's strategic energy plan and ensure the organization is on track to meeting its goals.

Finally, the USI program collects all the annual strategic energy plans from the State agencies and UNC Institutions, and also the annual reports of utility cost and consumption from the State agencies, UNC Institutions, and community colleges. The USI program team is responsible for synthesizing that information and preparing an annual report to the Joint Legislative Commission on Governmental Operations.

Tools:

- [Map of Areas Served by Utility Savings Initiative Program Team](#)
- [Sample Energy and Water Plan Declaration](#)
- [Sample Energy and Water Plan Mandate](#)
- [2013 Utility Savings Initiative \(USI\) Annual Report](#)

OUTREACH

Periodic site visits are the cornerstone of North Carolina's outreach to USI program participants. The Energy Office uses all of the consumption reports and energy plans submitted to help identify resources those entities may access to implement projects in a cost-effective manner. Often times these site visits are initiated by the liaisons when they require direct assistance evaluating a project or revising their strategic energy plans.

In addition, the USI program team routinely participates as invited speakers at conferences and workshops that target the USI program participants, such as participating in the annual Sustainable Energy Conference which has a focused public buildings track. The USI team also participates in the UNC Energy Initiative, an event established by the President of the UNC System to push the various institutions of higher learning under his leadership to meet the energy savings targets

outlined in the Senate Bill 668. The primary focus of this event is to foster dialogue and share best practices among participants with an emphasis on meeting their statutory requirements and establishing stretch goals that will extend beyond 2015. The collaborative environment among the State agencies and UNC Institutions, exemplified by the UNC Energy Initiative, is a great example of the impact that policies have had in North Carolina. Finally, each year the USI program team gives a current outlook on energy, a “state of the State on energy,” at several different locations across the State. These forums are another opportunity to share the work of the USI program and the impact the program has had on energy and water use in State operations.

USI program staff also continues to engage community ‘user groups’ to foster dialogue among regional participants and share best practices. The ‘user groups’ consist of USI program participants in the same region who share similar challenges and opportunities related to energy management at their facilities. The ‘user group’ sessions allow for participants to share success stories, best practices, and discuss common barriers they face. These ‘user groups’ are not limited to the agency and university liaisons, but often also include the facility managers implementing the measures in the agency and university buildings.

Training, Technical Assistance, and Public Recognition – A core component of the USI program’s success is the ability to provide relevant training and technical assistance to the participants. This training and technical assistance includes:

- **Energy Management Diploma Program** was designed to help employees of governmental units learn and incorporate activities to manage and reduce energy at their facilities. The State Energy Office provides the funding to cover the registration costs for employees to attend the program. The program runs two days a month for seven consecutive months in order to make it more viable for employees to attend. Employees learn how to read utility bills, are trained to understand utility rate schedules, and how to evaluate if the equipment in their buildings is functioning properly and efficiently. Employees at all levels are welcome to attend—previously trained employees include mail room clerks and Chief Financial Officers and everyone in between. At the completion of the program, attendees have the option of taking an exam that, if passed, can lead to a Professional Energy Management diploma. The biggest impact of this training has been a large group of trained individuals throughout the State agencies and UNC Institutions that understand energy management and have the knowledge and skills to implement the practices in their organizations. In order to evaluate the impact of the training program, the USI program team conducts follow up interviews with employees to see if they are implementing what they learned in the training. With funding from the American Recovery and Reinvestment Act, many universities in North Carolina hired energy managers. Those energy managers received a focused three week version of this training and many of them proved so valuable that their university permanently hired them.
- **Strategic Energy Plan Creation** – The USI program team provides agencies with the resources and assistance to evaluate their current energy use, project future utility needs and develop plans to meet goals in the most cost-efficient manner. Each participant is assigned a primary staff member from the USI program team to work with them to create and implement an effective strategic energy plan for their facilities. The USI program staff provides liaisons with a strategic energy plan template and also a copy of the USI program’s

strategic energy plan to serve as guidance documents in developing their own plans. The USI staff member assigned to a specific agency or university liaison will work with the liaison to develop that plan on an ongoing basis.

- **Technical Workshops** on specific building systems and programs are also offered to USI program participants. For example, the USI program staff conducted workshops for liaisons on how to create a strategic energy plan and workshops for implementers on equipment such as HVAC systems and the requirements of the building code.
- **Implementation Assistance** – The USI program staff provides participants with technical assistance on basic level audits and project evaluations, once data has been collected and an energy plan is created. Team members monitor and encourage participants to engage in current programs to reduce energy consumption and assist in setting up new programs. If a more complex system specific audit is required, then the agency or university is responsible for hiring a contractor to perform that audit. The USI program team will also assist organizations with preparing and delivering presentations to participating stakeholders, identifying funding opportunities/methodologies, educating staff on low-cost no cost strategies, evaluating new construction to ensure buildings are performing as designed and meeting the legislative requirements outlined in Senate Bill 668, and educating agency and university staff on the value of energy management.
- **Legislative Updates** – The USI program team provides participants with an annual analysis of legislative updates and the impacts that legislation will have on their organizations as well as other topics of timely relevance to their organizations.
- **USI Leadership Certificate** – The top performing USI program participants receive a USI Leadership Certificate for excellence in promoting USI program principles. This recognition has proven to be a valuable aspect of the program as many agencies and universities have requested the criteria for receiving a certificate, so they can implement the necessary USI practices in order to receive a Leadership Certificate in the future. That criteria for determining who receives the Leadership Certificate is based around the participants' progress in the following six elements:
 - Utilities - Data collection and management
 - Policies – Adoption and enforcement of policies
 - Culture - Community engagement
 - Achievement - Reach objectives
 - Strategic Energy Plan - Working document
 - Innovative - Lead by example

Tools:

- [USI Recognition Certificate](#)
- [Strategic Energy Plan Sample Template](#)
- [2012 North Carolina State University Strategic Energy and Water Annual Report](#)
- [2012 Randolph Community College Strategic Energy and Water Plan](#)
- [University of North Carolina Chapel Hill Strategic Energy and Water Plan](#)
- State of the State on Energy Presentation on [“Denial of Service: The Hidden Cost of Deferred Maintenance”](#)
- State of the State on Energy Presentation on [“Deferred Maintenance: The Cost of Doing Nothing”](#)
- State of the State on Energy Presentation on [“USI Program Update”](#)

- [Presentation on Strategic Energy Planning](#)
- [Energy Management Diploma Series Training on Performance Contracting](#)
- [Utility Savings Initiative – Low- or No-Cost Suggestions Document](#)
- Energy Assessment Form: [PDF version](#); [Excel version](#)
- [Energy Management Diploma Program Course Schedule](#)

MEASURING SUCCESS

The records of baseline energy and water use are maintained by the State Energy Office, as well as all the energy and water use for all subsequent years. Each year the State Energy Office reports the status of energy and water reduction in their annual report, reports the level of success of all the planned activities of the previous year, and spells out the plans for the next year. This report and other details of the USI program can be found on the USI program website.

Tools:

- Energy and Water Usage Tracking Tool: [PDF version](#); [Excel version](#)
- [2013 Utility Savings Initiative \(USI\) Annual Report](#)
- [2015 Utility Savings Initiative \(USI\) Annual Report](#)
- [Utility Savings Initiative Website](#)

OUTCOMES

Since the USI program's inception in fiscal year 2002-03, a total investment of approximately \$12 million in State appropriated funds to support the operation of the program plus \$160 million in performance contracts through private bank financing leveraged by the program has helped produce nearly \$553 million in avoided utility costs. Energy costs have increased 47% while consumption is down 27%. Water costs have increased 166% while consumption has decreased 26%.

For fiscal year 2011-12, total utility expenditures for State agencies and UNC Institutions were more than \$330 million dollars. Had the USI program not been in place, taxpayers would have paid an additional \$121 million for utilities and State facilities would have been responsible for emitting an additional 388,745 metric tons of carbon dioxide into the atmosphere. In addition to the measurable energy and water savings, there have also been significant changes in behavior within the State agencies and UNC Institutions. Agencies and universities now see energy and water as resources that can be managed and have designated dedicated liaisons in their organizations to manage those resources. Collaboration has also increased within and across agencies and universities as they work together to reach the energy reduction targets outlined in the 2007 legislation. Finally, many agencies and universities have encouraged their personnel to contribute to this common energy reduction goal by being mindful of their individual impacts and following basic principles outlined in the 2002 memorandum from the SEO Director.

Utility Savings Initiative (USI) Program Avoided Utility Costs	
2011 - 2012	2002 - 2012

Energy costs avoided	\$105,616,425	Total energy costs avoided	\$495,664,098
Water costs avoided	\$15,476,992	Total water costs avoided	\$57,294,675
Avoided utility costs:	\$121,093,417	Total avoided utility costs:	\$552,958,773
Tools:			

- 2013 Utility Savings Initiative (USI) Annual Report

